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ABSTRACT

Focusing on design occupations, this document is one in a series of forty-one reprints from the Occupational Outlook Handbook providing current information and employment projections for individual occupations and industries through 1985. The specific occupations covered in this document include architects, commercial artists, display workers (retail trade), floral designers, industrial designers, interior designers, landscape architects, and urban planners. The following information is presented for each occupation or occupational area: a code number referenced to the Dictionary of Occupational Titles; a description of the nature of the work; places of employment; training, other qualifications, and advancement; employment outlook; earnings and working conditions; and sources of additional information. In addition to the forty-one reprints covering individual occupations or occupational areas (CE 017 757-797), a companion document (CE 017 756) presents employment projections for the total labor market and discusses the relationship between job prospects and education. (BM)

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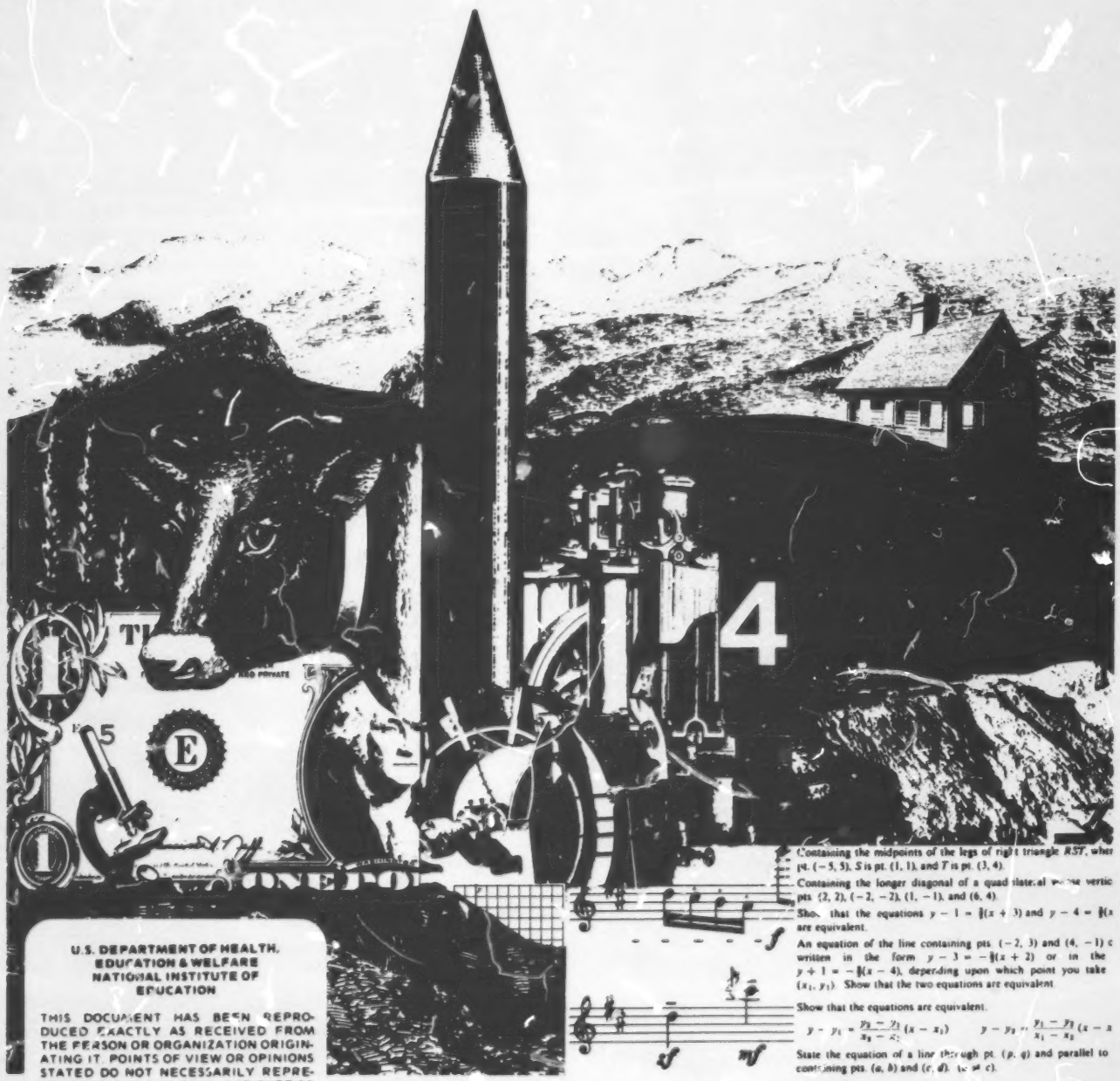
Design Occupations

CE

Reprinted from the
Occupational Outlook Handbook,
1978-79 Edition.

U.S. Department of Labor
Bureau of Labor Statistics
1978

Bulletin 1955-34



Containing the midpoints of the legs of right triangle *RST*, wher
pt. (−5, 5), *S* is pt. (1, 1), and *T* is pt. (3, 4).

Containing the longer diagonal of a quadrilateral whose vertic
pts. (2, 2), (−2, −2), (1, −1), and (6, 4).

Sho. that the equations $y - 1 = \frac{1}{2}(x + 3)$ and $y - 4 = \frac{1}{2}(x$
are equivalent.

An equation of the line containing pts. (−2, 3) and (4, −1) c
written in the form $y - 3 = -\frac{1}{2}(x + 2)$ or in the
$y + 1 = -\frac{1}{2}(x - 4)$, depending upon which point you take
(x_1, y_1). Show that the two equations are equivalent.

Show that the equations are equivalent.

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1) \qquad y - y_2 = \frac{y_1 - y_2}{x_1 - x_2}(x - x$$

State the equation of a line through pt. (p, q) and parallel to
containing pts. (a, b) and (c, d). $(a \neq c)$.

U.S. DEPARTMENT OF HEALTH,
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ARCHITECTS

(D.O.T. 001.081)

Nature of the Work

Attractive buildings improve the physical environment of a community. But buildings also must be safe and must allow people both inside and around them to perform their duties properly. Architects design buildings that successfully combine these elements of attractiveness, safety, and usefulness.

Most architects provide professional services to clients planning a building project. They are involved in all phases of development of a building or project, from the initial discussion of general ideas to the final piece of construction. Their duties require a variety of skills—design, engineering, managerial, and supervisory.

The architect and client first discuss the purposes, requirements, and cost of a project, as well as any preference in design that the client may have. The architect then prepares schematic drawings to show the scale and structural relationships of the building.

If the schematic drawings are accepted, the architect develops a final design showing the floor plans and the structural details of the project. For example, in designing a school, the architect determines the width of corridors and stairways so that students may move easily from one class to another; the type and arrangement of storage space, and the location and size of classrooms, laboratories, lunchroom or cafeteria, gymnasium, and administrative offices.

Next the architect prepares working drawings showing the exact dimensions of every part of the structure and the location of plumbing, heating units, electrical outlets, and air conditioning.

Architects also specify the building materials, and, in some cases, the interior furnishings. In all cases, the architect must insure that the structure's design and specifications conform to local and State building codes, zoning laws, fire regulations, and other ordinances.

Throughout this time, the architect may make changes to satisfy the client. A client may, for example, decide that an original house plan is too expensive and ask the architect to make modifications. Or clients may decide that their own ideas are more appealing than those of the architect. As a result, architects could become frustrated, redesigning their plans to meet the clients' expectations.

After all drawings are completed, the architect assists the client in selecting a contractor and negotiating the contract. As construction proceeds, the architect makes periodic visits to the building site to insure that the contractor is following the design, using the specified materials, and meeting the specified quality standards. The job is not completed until construction is finished, all required tests are made, bills are paid, and guarantees are received from the contractor.

Architects design a wide variety of structures such as houses, churches, hospitals, office buildings, and airports. They also design multibuilding complexes for urban renewal projects, college campuses, industrial parks, and new towns. Besides designing structures, architects also may help in selecting building sites, preparing cost and land-use studies, and long-range planning for site development.

When working on large projects or for large architectural firms, architects often specialize in one phase of the work such as designing, or administering construction contracts. This often requires working with engineers, urban planners, landscape architects, and other design personnel.

Places of Employment

About 50,000 registered (licensed) architects were employed in 1976. In addition, many unlicensed architectural school graduates also work as architects, but they must work under the supervision of licensed architects.

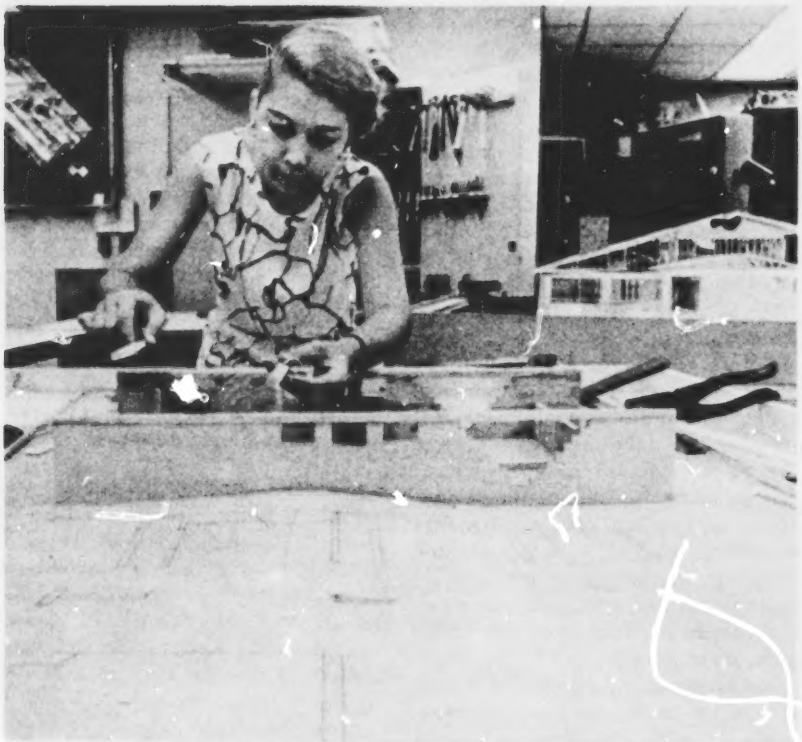
Most architects work in architectural firms, for builders, for real estate firms, or for other businesses that have large construction programs. Some work for government agencies, often in city and community planning or urban redevelopment. About 1,300 architects work for the Federal Government, mainly for the Departments of Defense, Housing and Urban Development, and the General Services Administration.

Although found in many areas, a large proportion of architects are employed in seven cities: Boston, Chicago, Los Angeles, New York, Philadelphia, San Francisco, and Washington.

Training, Other Qualifications, and Advancement

All States and the District of Columbia require architects to be licensed. To qualify for the 2-day licensing exam, a person must have either a bachelor of architecture degree followed by 3 years of experience in an architect's office or a master of architecture degree followed by 2 years of experience. As a substitute for formal training, most States accept additional experience (usually 12 years) and successful completion of a qualifying test for admission to the licensing examination. Many architectural school graduates work in the field even though they are not licensed. However, a registered architect is required to take legal responsibility for all work.

In 1976, the National Architectural Accrediting Board had accredited 80 of the 101 schools offering professional degrees in architecture. Most of these schools offer a 5-year curriculum leading to a Bachelor of Architecture degree or a 6-year curriculum leading to a Master of Architecture degree. Students also may transfer to professional degree programs after completing a 2-year junior or community college program in architecture. Many architectural schools also offer graduate education for those who already have their first professional degree. Although such training is not essential for practicing architects, it often is desirable for those in research and teaching. A typical college architectural program includes courses in architectural theory, design, graphics, engineering and urban planning, as well as in English, mathematics,



New graduates usually begin as junior drafters in architectural firms.

chemistry, sociology, economics, and a foreign language.

Persons planning careers in architecture should be able to work independently, have a capacity for solving technical problems, and be artistically inclined. They also must be prepared to work in the competitive environment of business where leadership and ability to work with others are important. Working for architects or building contractors during summer vacations is useful for gaining practical knowledge.

New graduates usually begin as junior drafters in architectural firms, where they prepare architectural drawings and make models of structures under the direction of a registered architect. After several years of experience, they may advance to chief or senior drafter responsible for all major details of a set of working drawings and for supervising other drafters. Others may work as designers, construction contract administrators, or specification writers who prepare directions explaining the architect's plan to the builder. Employees who become associates in their firms receive, in addition to a salary, a share of the profits. Usually, however, the architect's goal is to own his or her own business.

Employment Outlook

Architects are expected to face competition for jobs through the mid-1980's. Although employment of architects is expected to rise about as fast as the average for all workers during this period, the number of degrees granted in architecture also has been increasing rapidly. If this trend continues, the number of people seeking employment in the field could exceed the number of openings from growth, deaths, and retirements. The best employment prospects are expected to occur in the South and in those States which do not have architectural schools.

The outlook for these workers may change, however, during short-run periods. Because the demand for architects is highly dependent upon the level of new construction, any significant upsurge or downturn in building could temporarily alter demand.

Most job openings are expected to be in architectural firms but some openings are also expected to occur in colleges and universities, construction firms, and the Government.

The major factor contributing to the increase in employment of architects is the expected rapid growth of nonresidential construction. In addition, the projected increase in enrollments in architectural programs should result in additional requirements for architects to teach in colleges and universities.

Growing public concern about the quality of the physical environment is expected to increase the demand for urban redevelopment and city and community environmental planning projects. This should create further opportunities for employment. (See statement on urban planners elsewhere in the *Handbook*.)

Earnings and Working Conditions

The average salary for architects in 1976 was well over $20,000, according to the limited information available. Architects with well-established private practices generally earn much more than even highly paid salaried employees of architectural firms. Although the range in their incomes is very wide, some architects with many years of experience and good reputations earned well over $35,000 a year. Architects starting their own practices may go through a period when their expenses are greater than their income. Annual income may fluctuate due to changing business conditions.

In 1977, the average salary for architects working in the Federal Government was about $23,000.

Most architects spend long hours at the drawing board in well equipped offices. An architect sometimes has to work overtime to meet a deadline. The routine often is varied by interviewing clients or contractors and discussing the designs, construction procedures, or building materials of a project with other architects or engineers. Contract administrators frequently work outdoors during inspections at construction sites.

4

Sources of Additional Information

General information about careers in architecture, including a catalog of publications, can be obtained from:

The American Institute of Architects, 1735 New York Ave. NW., Washington, D.C. 20006.

Information about schools of architecture and a list of junior colleges offering courses in architecture are available from:

The Association of Collegiate Schools of Architecture, Inc., 1735 New York Ave. NW., Washington, D. C. 20006.

Information about the licensing examinations can be obtained from:

The National Council of Architectural Registration Boards, 1735 New York Ave. NW., Suite 700, Washington, D.C. 20006.

COMMERCIAL ARTISTS

(D.O.T. 141.031 and .081, 970.281 and .381, and 979.381)

Some salaried commercial artists also do freelance work in their spare time.

Nature of the Work

A team of commercial artists with varying skills and specializations often creates the artwork in newspapers and magazines and on billboards, brochures, and catalogs. This team is supervised by an art director, whose main function is to develop a theme or idea for an ad or an advertising campaign. After the art director has determined the main elements of an ad or design, he or she will turn it over to two specialists for further refinement. The *sketch artist*, also called a *renderer*, does a rough drawing of any pictures required. The *layout artist*, who is concerned with graphics rather than art work, constructs or arranges the illustrations or photographs, plans the typography and picks colors for the ad. What emerges is a "rough visual," a sketch of the finished ad. Both the sketch artist and the layout artist work closely with the art director; they may do several sketches or rough visuals before the director is satisfied.

Other commercial artists, usually with less experience, are needed to turn out the finished product. *Letterers* put together headlines and other words on the ad. They use set or photo lettering, and must have a knowledge of type faces and the ability to reproduce them in a variety of sizes and mediums such as ink, pencil, or cutout pieces of paper. *Mechanical artists* paste up an engraver's guide of the ad with all the elements in the exact size and place in which they will finally appear. Since this pasteup will be the engraver's blueprint, mechanical artists must be very precise.

Pasteup artists and other beginners do more routine work such as cutting mats, assembling booklets, or running errands.

In a small office, the art director may perform the layout and more routine work with the help of trainees. In a large office, however, the art director develops concepts with the copywriter; sets standards; deals with clients; and purchases needed photographs, illustrations, lettering, and other artwork from freelancers.

Advertising agencies or advertising departments who lack time or personnel hire *freelance illustrators* to prepare sketches. These artists must be highly talented and able to work quickly—an agency, for example, may require a finished sketch in 1 day. Only the highly talented will receive enough assignments to maintain a sufficient income.

Advertising artists create the concept and artwork for a wide variety of items. These include direct mail advertising, catalogs, counter displays, slides, and filmstrips. They also design or lay out the editorial pages and features of newspapers and magazines and produce or purchase the necessary illustrations or artwork. Some commercial artists specialize in producing fashion illustrations, greeting cards, or book illustrations, or in making technical drawings for industry.

Places of Employment

About 67,000 persons worked as commercial artists in 1976. Although some commercial artists can be found in nearly every city, the majority work in large cities, such as New York, Los Angeles, Boston, Washington, D.C., and Chicago, where the

largest users of commercial art are located.

Most commercial artists work as staff artists for advertising departments of large companies, advertising agencies, printing and publishing firms, textile companies, photographic studios, television and motion picture studios, department stores, and a variety of other business organizations. Many are self-employed or freelance artists. Some salaried commercial artists also do freelance work in their spare time. A few thousand commercial artists work for Federal Government agencies, principally in the Defense Department. A few teach in art schools.

Training, Other Qualifications, and Advancement

Artistic ability, imagination, neatness, and a capacity to visualize ideas on paper are important qualifications for success in commercial art. However, these qualities may be developed by specialized training in the techniques of commercial and applied art.

Persons can prepare for a career in commercial art by attending a 2- or 4-year trade school, or a junior college, college, or university which offers a program in commercial art. In 1976, about 900 institutions offered instruction in commercial art.

Most artists who enter the field are graduates of trade schools. Admission to these schools is based upon high school grades, a portfolio of art work, and an interview. A growing number of colleges and universities, however, confer degrees in commercial art. These college programs supplement art instruction with liberal arts courses such as English or history. Although many employers prefer graduates of a college or university program in commercial art, the quality and reputation of a particular program is more important than the type of institution offering it.

Limited training in commercial art also may be obtained through public vocational high schools and practical experience on the job. There is no formal training program for the commercial art trainee, however. Instead, trainees may run errands for the art director or do other general chores while learning. Additional training usually is needed for advancement. Beginners also should supplement their formal education and training by making posters, layouts, illustrations, and similar projects for schools and other organizations.

The first year in art school may be spent studying fundamentals—perspective, design, color harmony, composition—and the use of pencil, crayon, pen and ink, and other art media. Subsequent study, generally more specialized, includes drawing from life, advertising design, graphic design, lettering, typography, illustrations, and other courses in the student's particular field of interest.

In order to advance beyond a beginner's job, commercial artists must develop specialized skills. For example, letterers and retouchers must do precise and detailed work that requires excellent coordination. A sketch artist must be able to draw anything adequately in almost any medium, including die marker, pencil, ink or transparencies. Most commercial artists advance by specializing either in the mechanical elements of producing an ad (letterers and mechanical and layout artists) or in the pictorial elements (sketch artists and illustrators). Thus, a successful sketch artist may not be very skilled in typography. Art directors, however, need a strong educational background in art and business practices in addition to experience with photography, typography, and printing production methods. Advertising art directors require a special kind of creativity—the ability to conceive ideas that will stimulate the sale of the client's products or services.

Commercial artists usually assemble their best artwork into a "portfolio," to display their work. A good portfolio is essential for initial employment, for freelance assignments, and for job changes.

Employment Outlook

Talented and well-trained commercial artists may face competition for employment and advancement in most kinds of work through the mid-1980's. Those with only average ability and little specialized training are likely to encounter keen competition for beginning jobs and have very limited opportunities for advancement.

Employment of commercial artists is expected to increase about as fast as the average for all occupations through the mid-1980's. One anticipated area of growth is in visual advertising such as television graphics, packaging displays, and poster and window displays. The expanding field of industrial design also is expected to require more qualified artists for three-dimensional work with engineering concepts. (See statement on industrial designers.) In addition, a few thousand jobs for commercial artists are expected to open each year throughout the period to replace workers who will die, retire, or leave the field for other reasons.

The demand for commercial artists is expected to vary by specialization or type. For example, demand for freelance artists is expected to increase and experienced paste-up and mechanical artists are always needed; jobs for art directors and layout artists, however, will be fewer, much sought after, and open only to experienced, very talented, and creative artists. Employment opportunities are expected to be best for those who have a variety of skills rather than expertise in one or two specialties.

Commercial art occupations are particularly sensitive to changes in business conditions. Therefore, jobseekers may find that opportunities vary from year to year depending upon economic conditions.

Earnings and Working Conditions

In 1976, beginning commercial artists having no training beyond vocational high school typically earned from $90 to $110 a week; graduates of 2-year professional schools, $100 to $125 a week; and graduates of 4-year post-high school programs, $120 to $175 a week, according to the limited data available. Talented artists who had strong educational backgrounds and good portfolios, however, started at higher salaries. After a few years of experience, qualified illustrators may expect to earn $185 to $300 a week. Art directors, executives, well-known freelance illustrators, and others in top

positions generally have much higher earnings, from $480 to $580 a week or more.

Earnings of freelance artists vary widely, since they are affected by factors such as skill level, variety, and popularity of work. Freelance artists may be paid by the hour or by the assignment. Commercial artists who worked for the Federal Government in 1977 had an average annual salary of $15,550 or about $300 a week.

Salaried commercial artists generally work 35 to 40 hours a week, but sometimes they must work additional hours under considerable pressure to meet deadlines. Freelance artists usually have irregular working hours.

Sources of Additional Information

Information on institutions offering programs in commercial art is available from:

National Art Education Association, National Education Association, 1916 Association Dr., Reston, Va. 22091.

DISPLAY WORKERS (RETAIL TRADE)

(D.O.T. 298.081)

Nature of the Work

It happens every shopping day: A person browsing through a clothing store notices a mannequin wearing an attractive suit and, without having planned to, purchases a similar outfit. A fishing enthusiast sees a display of angling equipment in a store window, goes in, and buys a new reel.

Incidents like these show how displays in stores and store windows can attract customers and encourage them to buy. Knowing the effectiveness of this form of advertising, some stores allot a large share of their publicity budget to displays.

Display workers specialize in designing and installing such exhibits. Their aim is to develop attractive, eye-catching ways of showing store merchandise to best advantage. To create a setting that enhances the merchandise, display workers need imagination as well as knowledge of color harmony, composition, and other fundamentals of art. They may, for example, choose a theme—a beach setting to advertise bathing suits or surfing equipment—and design a colorful display around this theme. After the design has been approved by the store's management, display workers obtain the props and other necessary accessories. Their craft skills come into play at this time.

Display workers often construct many of the props themselves using hammers, saws, spray guns, and other tools. They may be assisted in these tasks by a helper or by store maintenance workers. Sometimes display workers use merchandise from other departments of the store as props. Display workers also may use props out of storage, designed for previous displays, or order props from firms that specialize in them. The display workers install the props, background settings, and lighting equipment. They also dress mannequins and add finishing touches. Periodically, they dismantle and replace old displays with new ones.

Display workers need imagination as well as knowledge of color harmony.

In large stores that employ many display workers, each may specialize in a particular activity such as carpentry, painting, making signs, or setting up interior or window displays. Overall planning and administration in large stores are usually the responsibilities of a display director who supervises and coordinates the activities of each department. The director confers with executives, such as advertising and sales managers, to select merchandise for promotion and to plan displays.

Places of Employment

About 36,000 persons worked as display workers in retail stores in 1976. Most worked in department, clothing, and homefurnishing stores; others in variety, drug, and shoe stores and in book and gift shops. Several thousand additional freelance or self-employed display workers serviced small stores that needed professional window dressing but could not afford full-time display workers.

Geographically, employment is distributed much like the Nation's population, with most jobs in large towns and cities.

Training, Other Qualifications, and Advancement

Most display workers learn their trade through informal on-the-job training. Beginners are hired as helpers to dismantle displays, carry props, and do other routine tasks. Gradually, they are given the opportunity to do more difficult work such as building props and, if they show artistic talent, planning simple designs. A beginner usually can become skilled in 1 to 2 years. Training time varies, however, depending on the beginner's ability and the variety and complexity of displays that the employer requires.

When hiring inexperienced workers, most employers will consider only high school graduates. Courses that provide helpful training for display work include art, woodworking, mechanical drawing, and merchandising. Some employers seek applicants who have completed college courses in art, interior decorating, fashion design, advertising, or related subjects.

Creative ability, manual dexterity, and mechanical aptitude are among the most important personal qualifications needed in this field. Good physical condition and agility are needed to carry equipment, climb ladders, and work in close quarters without upsetting props.

Advancement may take several forms. A display worker with supervisory ability might become display director in a large store. A display director might in turn progress to sales promotion director or be placed in charge of store planning.

Freelance work is another avenue of advancement. Relatively little money is needed to start a freelance business. However, this is a highly competitive field, and self-employment may be a struggle at the outset unless an excellent reputation has first been established. For this reason, some workers moonlight until they have enough clients for full-time work on their own.

The display worker's skills could lead to jobs in other art-related occupations such as interior decoration or photography. These occupations, however, require additional training.

Employment Outlook

Employment of display workers is expected to grow more slowly than the average for all occupations through the mid-1980's. Greater overall coordination of activities by store managements and increased specialization of job duties will tend to limit the number of display workers needed in each store. In addition to the jobs resulting from employment growth, however, many openings will arise each year to replace experienced workers who retire, die, or transfer to other occupations.

Employment opportunities will continue to be concentrated in large stores, most of which are located in metropolitan areas.

Earnings and Working Conditions

Among large employers, wages for beginners ranged from $2.50 to $3.75 an hour in 1976. Beginners who have completed college courses in art, interior decorating, or related subjects generally received the higher starting salaries. Experienced display workers' salaries ranged from $120 to $240 a week, depending largely on experience and ability. Most display directors earned between $12,000 and $20,000 a year. Experienced directors in large metropolitan department stores, particularly executives, may earn considerably more.

The earnings of freelancers depend on their talent and prestige, on the number and kinds of stores they service, and on the amount of time they work. Many highly skilled freelancers earn more than $25,000 a year.

Display personnel enjoy the satisfaction of doing creative work. Transforming an original design into reality can be a highly rewarding experience.

Display workers usually work 35 to 40 hours a week. During busy seasons, such as Christmas and Easter, they may work overtime, nights, and weekends to prepare special displays.

Constructing and installing props frequently require prolonged standing, bending, stooping, and working in awkward positions. Display workers risk injury from falls off ladders, from contact with sharp or rough materials, and from the use of power tools, but serious injuries are uncommon.

Sources of Additional Information

Details on career opportunities can be obtained from local retailers, such as department stores, and from local offices of the State employment service.

FLORAL DESIGNERS

(D.O.T. 142.081)

Nature of the Work

Floral designers assemble flowers and foliage into a specific design to express the thoughts and sentiments of the sender. In performing their

work, floral designers combine their knowledge of flower and plant forms and floral design techniques with their own creativity to produce floral and plant gifts, decorations, and tributes.

Designers must know the names and lasting qualities of flowers, and growing information about flowering plants. They must also know the seasonal availability of flower and plant materials and the management's pricing structure for these materials.

In any given day, designers may receive a variety of orders including decorative flowering plants, bouquets, corsages, funeral work, and dried flower arrangements. Special orders, such as for weddings and parties, also incorporate the creative design and decorating talents of the floral designer.

Designers work from a written order indicating customer preference for color and type of flower, as well as the occasion, price, date, time, and place the arrangement or plant is to be delivered. Customers sometimes leave the choice of flowers, color, and design to the discretion of the designer, however.

A funeral order may read "easel spray of red and white flowers." For the foundation, the designer attaches a base (styrofoam, needle pack, etc.) near the top of a three-legged wire stand. Appropriate flowers are selected from the floral refrigerator. White gladiolas and red carnations are a possible combination. The price of the order and the cost of the flowers determine the number of flowers used. The flowers are cut to the needed length and wired for security. Stems are strengthened with wood sticks for easy insertion into the base.

To provide a background for the flowers, the designer inserts leafy branches such as chamadorea or fern into the base. Gladioluses are spaced so that the tips of the flowers approximate an oval or diamond shape. Carnations are placed between the gladioluses to provide contrasting form, color harmony, and depth. A bow is placed at the focal point of the spray, and foliage is added to hide construction. On the back of the sympathy card are the description of the spray and the donor's name and address for easy acknowledgement. The spray is ready for delivery. This type of order usually is completed in about 15 minutes.

Floral designers often have other duties. They may help customers select flowers, plants, gifts, and floral accessories available in the shop. During slack periods, designers

Floral arrangements express the designer's artistic talent.

sometimes decorate flowering plants, arrange planters and terrariums, and prepare accessories for a coming season—for example, bows and streamers for football corsages or dressings for flowering plants. The variety of duties performed by a floral designer depends on the size of the shop and the number of designers employed.

Places of Employment

About 37,000 floral designers were employed in 1976. Nearly all designers work in the retail flower shops common to large cities, suburban shopping centers, and small towns. Most shops are small and employ only one or two floral designers; many designers manage their own stores. Geographically, employment is distributed much the same as population.

Training, Other Qualifications, and Advancement

An increasing number of people now take courses in floral design to prepare for a career in this field. Courses in flower arranging are offered in many adult education programs, junior colleges, and commercial floral design schools. Longer programs provide training in flower marketing and shop management for floral designers who plan to operate their own shops. A background of formal training gives a prospective designer an advantage in obtaining a job over other applicants who have no training. However, since speed and creative ability are the most important elements in successful floral designing, training acquired on the job through actual work experience also is valuable.

Many people who want to become designers are trained on the job by the manager or an experienced floral designer. Initially they copy simple arrangements that use one type of flower. If they work quickly with their hands and recognize the shape, color and position of flowers that make attractive arrangements, instruction in more complex arrangements is given. As experience is gained, original designs required for special orders can be attempted. Usually a person can become a fully qualified floral designer after 2 years of on-the-job training.

Good color vision, manual dexterity, and the ability to arrange various shapes and colors in attractive patterns are the primary qualifications for this occupation. A high school diploma usually is desired, although not essential. Applicants must be able to write legibly and do simple arithmetic in order to write up bills for customers. High school courses in business arithmetic, bookkeeping, selling techniques, and other business subjects are helpful. Experience gained by working part time in a flower shop while still in school is very helpful.

Floral designers with supervisory ability may advance to manager or design supervisor in large flower shops. Managers who have the necessary capital may open their own shops.

Employment Outlook

Employment of floral designers is expected to increase faster than the average for all occupations through the mid-1980's. In addition to job openings created by employment growth, many openings will arise each year as workers retire, die, or change occupations.

Floral designer employment is related to sales of retail florist shops, which vary with ups and downs in the economy. Over the long run, however, it is expected that population growth and rising income will cause sales of flowers and floral arrangements to increase significantly. As a result, more floral designers will be needed.

Earnings and Working Conditions

Limited information indicates that in 1976 experienced designers usually earned between $2.50 and $5 an hour. Inexperienced floral designers generally earned the minimum wage. Although their earnings are often low, designers achieve the additional satisfaction of doing creative work and seeing their ideas transformed into reality.

In small shops, floral designers often work 8 hours a day, Monday through Saturday. In many large shops, designers who work Saturday get a day off during the week. Designers generally work long hours around certain holidays, such as Easter and Valentine's Day, when the demand for flowers is great.

Most designers receive holiday and vacation pay. Because most shops are small, other fringe benefits are limited. Some employers pay part of the cost of group life and health insurance but few contribute to retirement plans other than social security. Floral designers in a few cities are members of the Retail Clerks International Association.

Floral designers must be able to stand for long periods. Work areas are kept cool and humid to preserve the flowers, and designers are exposed to sudden temperature changes when entering or leaving storage refrigerators. In general, however, florist shops are clean and well-ventilated, and provide a pleasant atmosphere.

Sources of Additional Information

For additional information about careers in floral design and addresses of schools offering courses in this field, write to:

Society of American Florists, 901 N. Washington St., Alexandria, Va. 22314.

INDUSTRIAL DESIGNERS

(D.O.T. 142.081)

Nature of the Work

When people buy a product, whether it's a home appliance, a new car, or a ball point pen, they want it to be as attractive, safe, and easy to use as possible. Industrial designers combine artistic talent with knowledge of marketing, materials, and methods of production to improve the appearance and functional design of products so that they compete favorably with similar goods on the market.

As the first step in their work, industrial designers compare the product with competing products, and

Industrial designers confer on plans for new product.

gather information about such things as the needs of the user of the product, fashion trends, and effects of the product on its environment. After the initial research, industrial designers sketch different designs and consult with engineers, production supervisors, and sales and market research personnel about the practicability and sales appeal of each idea. Teamwork is important to get the best information about specialized areas of concern, such as engineering problems or new production or marketing methods.

After company officials select the most suitable design, the industrial designer or a professional modeler makes a model, often of clay so that it can be easily changed. After any necessary revisions, a final or working model is made, usually of the material to be used in the finished product. The approved model then is put into production.

Although most industrial designers are product designers, many others employed by business organizations are involved in different facets of design. Some industrial designers seek to create favorable public images for companies and for government services such as transportation by developing trademarks or symbols that appear on the firm's product, advertising, brochures, and stationery. Some design containers and packages that both protect and promote their contents. Others prepare small display exhibits or the entire layout for industrial fairs. Some design the interior layout of special purpose commercial buildings such as restaurants and supermarkets.

Corporate designers employed by a manufacturing company usually work only on the products made by their employer. This may involve filling day-to-day design needs of the company or long-range planning of new products. Consultant designers who serve more than one industrial firm often plan and design a great variety of products.

Places of Employment

About 12,000 persons were employed as industrial designers in 1976. Most worked for large manufacturing companies designing either consumer or industrial products or for design consulting firms. Others did freelance work, or were on the staffs of architectural and interior design firms. A few taught industrial design in colleges, universities, and art schools.

Industrial design consultants work mainly in large cities such as New York, Chicago, Los Angeles, and San Francisco. Industrial designers with industrial firms usually work in or near the manufacturing plants of their companies, which often are located in small and medium-sized cities.

Training, Other Qualifications, and Advancement

Completing a course of study in industrial design in an art school, in the design or art department of a university, or in a technical college is the usual requirement for entering this field of work. Persons majoring in engineering, architecture, and fine arts may qualify as industrial designers if they have appropriate experience and artistic talent. Most large manufacturing firms hire only industrial designers who have a bachelor's degree in the field.

In 1976, 33 colleges and art schools offered programs in industrial design that were either accredited by the National Association of Schools of Art or recognized by the Industrial Designers Society of America.

Industrial design programs may take either 4 or 5 years, and lead to a bachelor's degree in industrial design or fine arts. Some schools require applicants to submit sketches and other examples of their artistic ability for prior approval. Some schools also award a master's degree in industrial design.

Industrial design programs differ considerably among schools. Most college and university programs maintain a balance between science, humanities, and art; art schools generally stress a strong foundation in art. In most programs, students spend

much time in the lab designing objects in three dimensions. In studio courses, students make models with clay, wood, plaster, and other easily worked materials. In schools that have the necessary machinery, students make models of their designs while learning to use metalworking and woodworking machinery. Students also take courses in drawing, drafting, and other visual communications skills.

Many industrial design programs, particularly those that are part of a liberal arts college or university, also include courses in basic engineering, in the physical and natural sciences, in the behavioral sciences, and in marketing and business administration.

Industrial designers must have creative talent, drawing skills, and the ability to see familiar objects in new ways. They must understand and meet the needs and tastes of the public, rather than design only to suit their own artistic sensitivity. Designers should not be discouraged when their ideas are rejected—often designs must be resubmitted many times before one is accepted. Since industrial designers must cooperate with engineers and other staff members, the ability to work and communicate with others is important. A sound understanding of marketing, sales work, and other business practices is important for design consultants.

Applicants for jobs should assemble a "portfolio" of drawings and sketches to demonstrate their creativity and ability to communicate ideas.

New graduates of industrial design programs frequently do simple assignments for experienced designers. As they gain experience, they may become supervisors with major responsibility for the design of a product or a group of products. Those who have an established reputation and the necessary funds may start their own consulting firms.

Employment Outlook

Employment in this relatively small occupation is expected to grow more slowly than the average for all occupations. In recent years, the trend has been away from frequent redesign of household products, automobiles, and industrial equipment. However, continued emphasis on issues such as ecology and product safety should increase demand for industrial designers.

Demand for industrial designers may fluctuate over short-run periods. During economic downturns when the market for new products is dampened, the need for these workers also tends to decline.

Employment opportunities are expected to be best for college graduates with degrees in industrial design. In addition to openings resulting from growth, some employment opportunities will arise each year as designers die, retire, or transfer to other fields.

Earnings and Working Conditions

Salaries for inexperienced industrial designers with a bachelor's degree generally ranged from $9,000 to $12,000 a year in 1976, according to limited data. After several years' experience, it is possible to earn $14,000 to $18,000 a year. Salaries of those with many years of experience averaged more than $25,000 a year in 1976, but varied according to individual talent and the size and type of firm.

Earnings of industrial designers who own their consulting firms fluctuate greatly, but in general tend to be higher than the average earnings of corporate industrial designers.

Industrial designers generally work a 5-day, 35-40 hour week, with occasional overtime necessary to meet production deadlines. Independent consultants, who often are paid by the assignment, may work longer hours.

Sources of Additional Information

A brochure about careers and a list of schools offering courses and degrees in industrial design are available for 50 cents from:

Industrial Designers Society of America, 1750 Old Meadow Rd., McLean, Va. 22101.

INTERIOR DESIGNERS

(D.O.T. 142.051)

Nature of the Work

The creative work of interior designers, sometimes called *interior decorators*, helps make our living, working, and playing areas more attractive and useful. Interior designers plan and supervise the design and arrangement of building interiors and furnishings. They may work on either private homes or commercial buildings.

When planning a room, designers first consider the purpose of the area and the client's budget and taste. A very expensive couch that is easily soiled, for example, may not suit a family's needs for their recreation room.

Next, most designers prepare sketches of their plans. The sketches show all the furniture and accessories the designer is considering as well as any changes in the structure itself, such as a new wall to separate the dining and living rooms. Sometimes, the clients may not like the plans, in which case the designer must start all over again; other times, the client may want to make only minor changes, such as putting a table and chair where the designer had placed a couch.

Once the client approves both the plans and the cost, the designer may look for and then buy the furnishings, supervise the work of painters, floor finishers, carpet layers, and other craft workers if they are needed, and make sure the furnishings are installed and arranged properly.

Designers who work in large department and furniture stores that have separate design departments advise customers on decorating and design plans. Although their principal function is to help sell the store's merchandise, they sometimes may suggest furnishings from other sources when essential to the customer's plans. Department store designers also frequently advise the store's buyers and executives about style and color trends in interior fur-

nishings.

Interior designers who specialize in nonresidential structures often work for clients on large design projects such as the interiors of entire office buildings, hospitals, and libraries. Generally they plan the complete layout of rooms without changes to the structure of the building. Sometimes, though, they redesign or renovate the interiors of old buildings. In these cases, an architect checks the plans to make sure that they comply with building requirements. Some interior designers also design the furniture and accessories to be used in various structures, and then arrange for their manufacture. A few have unusual jobs such as designing interiors of ships and aircraft or stage sets used for motion pictures or television.

All designers, regardless of where they are working, must deal with paperwork. They must place orders, figure estimates, and maintain records of where to purchase hundreds of different types of furnishings.

Places of Employment

About 37,000 persons worked as interior designers in 1976, primarily in large cities.

Some experienced interior designers manage their own establishments, either alone or as partners with other designers. Most designers work for large design firms that employ designers to work independently with their clients or as assistants to senior designers.

Other interior designers work in large department or furniture stores, and a few have permanent jobs with hotel and restaurant chains. Some work for architects, furniture suppliers, antique dealers, furniture and textile manufacturers, or other manufacturers in the interior furnishing field. Interior designers also work for magazines that feature articles on home furnishings.

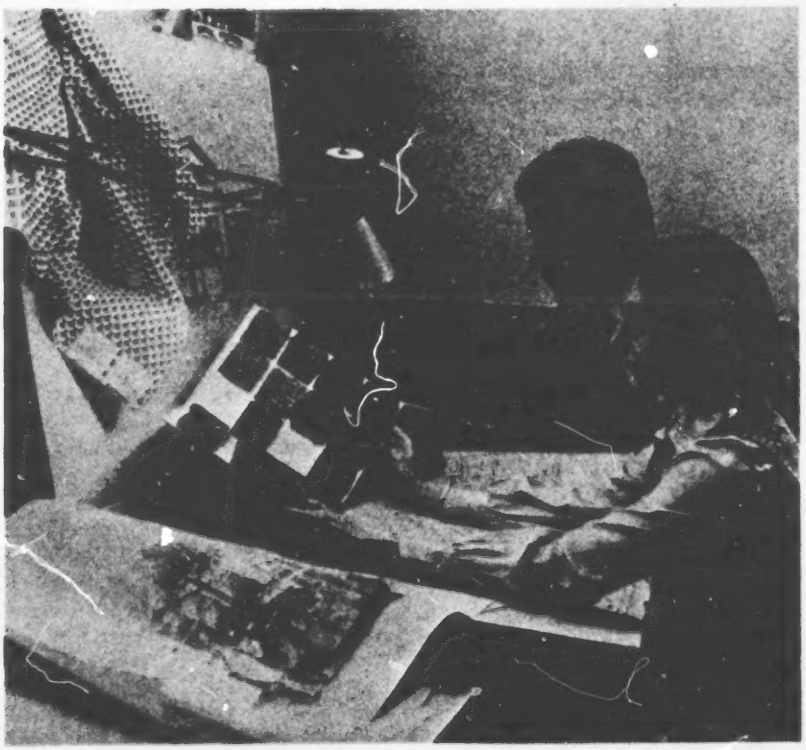
Training, Other Qualifications, and Advancement

Formal training in interior design is becoming increasingly important for entry into this field. Most architectural firms, well-established design firms, department and furniture stores, and other major employers will accept only trained people for beginning jobs. The types of training available include 3-year programs in a professional school of interior design, 4-year college or university programs that grant a bachelor's degree, or postgraduate programs leading to a master's degree or Ph. D. The curriculum usually includes principles of design, history of art, freehand and mechanical drawing, painting, study of the essentials of architecture as they relate to interiors, design of furniture and exhibitions, and study of various materials, such as wood, plastics, metals, and fabrics. A knowledge of furnishings, art pieces, and antiques is important. In addition, courses in sales and business subjects are valuable.

Membership in the American Society of Interior Design is a recognized mark of achievement in this profession. Membership usually requires the completion of 3 or 4 years of post-high school education in design, and several years of practical experience in the field, including supervisory work.

Persons starting in interior design usually serve a training period with a design firm, department store, or furniture store. They may act as receptionists, as shoppers with the task of matching materials or finding accessories, or as stockroom assistants, salespersons, assistant decorators, or junior designers. In most instances, from 1 to 5 years of on-the-job training are required before a trainee becomes eligible for advancement to designer. Beginners who do not get trainee jobs often sell fabric, lamps, or other interior furnishings in department or furniture stores to gain experience in dealing with customers and to become familiar with the merchandise. There is no guarantee, however, that this experience will result in a job in design, although it could lead to a career in merchandising.

After considerable experience, designers may advance to design department head or to other supervisory positions in department stores or in large design firms. If they have the



A successful designer must be creative, have good color sense and good taste, and be able to work well with people.

necessary funds, they may open their own businesses.

A successful designer must be creative, have good color sense and good taste, and be able to work well with people. At times, designers' tastes may not match those of their clients, so designers must be willing to make changes in plans they consider attractive and functional.

Employment Outlook

Persons seeking beginning jobs in interior design are expected to face competition through the mid-1980's. Interior design is a competitive field that requires talent, training, and business ability, and many applicants vie for the better jobs. Talented college graduates who major in interior design and graduates of professional schools of interior design will find the best opportunities for employment. Those with less talent or without formal training will find it increasingly difficult to enter this field.

Employment of interior designers is expected to increase about as fast as the average for all occupations through the mid-1980's. Growth in population, personal incomes, expenditures for home and office furnishings, and the increasing use of design services in both homes and commercial establishments should contribute to a greater demand for these workers. In addition to new jobs, some openings will be created by the need to replace designers who die, retire, or leave the field.

Department and furniture stores are expected to employ an increasing number of designers as their share in the growing volume of design work for commercial establishments and public buildings increases. Interior design firms also are expected to continue to expand.

Employment of interior designers, however, is sensitive to changes in general economic conditions because people often forego design services when the economy slows down.

Earnings and Working Conditions

Beginners usually are paid a straight salary plus a small commission. Starting salaries can range from the minimum wage plus a small commission to a fixed salary of $140 a week or higher. Firms in large metropolitan areas usually pay the highest salaries.

Some experienced interior designers are paid straight salaries, some receive salaries plus commissions based on the value of their sales, while others work entirely on commissions.

Incomes of experienced designers vary greatly. Many persons earn from $6,000 to $12,000 a year, and highly successful designers can earn much more. A small number of nationally recognized professionals earn well over $50,000 annually.

The earnings of self-employed designers vary widely, depending on the volume of business, their professional reputation, the economic level of their clients, and their own business competence.

Designers' work hours are sometimes long and irregular. Designers usually adjust their workday to suit the needs of their clients, meeting with them during the evenings or on weekends when necessary.

Sources of Additional Information

For information about careers in interior design and a list of schools offering programs in this field, contact:

American Society of Interior Design, 730 Fifth Ave., New York, N.Y. 10019.

LANDSCAPE ARCHITECTS

(D.O.T. 019.081)

Nature of the Work

Everyone enjoys attractively designed residential areas, public parks, and commercial zones. Landscape architects design these areas to satisfy functional needs as well as people's aesthetic sense.

Landscape architects assist many types of organizations in planning and designing a project, from a real estate firm starting a new suburban development to a city constructing an airport or park. They may plan and arrange trees, shrubbery, walkways, open spaces, and other features as well as supervise the necessary grading, construction, and planting.

Landscape architects first consider the nature and purpose of the project, the funds available, and the proposed buildings in planning a site. Next, they study the site and map features such as the slope of the land and the position of existing buildings, roads, walkways, and trees. They also observe the sunny parts of the site at different times of the day, soil texture, existing utilities, and many other landscape features. Then, after consulting with the project architect or engineer, they draw up plans to develop the site. If the plans are approved, landscape architects prepare working drawings showing all existing and proposed features. Landscape architects outline in detail the methods of constructing features and draw up lists of building materials. They then may invite landscape contractors to bid for the work.

Although landscape architects help design and supervise a wide variety of projects, some specialize in certain types of projects such as parks and playgrounds, hotels and resorts, shopping centers, or public housing. Still others specialize in services such as regional planning and resource management, feasibility and cost studies, or site construction.

Places of Employment

About 13,000 persons worked as landscape architects in 1976. Most were self-employed or worked for architectural, landscape architectural, or engineering firms. Government agencies concerned with forest management, water storage, public housing, city planning, urban renewal, highways, parks, and recreation also employed many landscape architects. The Federal Government employed over 550 landscape architects, mainly in the Departments of Agriculture, Defense, and Interior. Some landscape architects were employed by landscape contractors, and

Persons planning careers in landscape architecture should be interested in art and nature.

a few taught in colleges and universities.

Employment of landscape architects is concentrated around large metropolitan areas, primarily on the East and West Coasts. However, employment opportunities have recently been growing in the Southwest.

Training, Other Qualifications, and Advancement

A bachelor's degree in landscape architecture which takes 4 or 5 years is usually the minimum educational requirement for entering the profession. The American Society of Landscape Architects accredits about 40 colleges and universities that offer such programs. About 60 other schools also offer programs or courses in landscape architecture.

A person interested in landscape architecture should take high school courses in mechanical or geometrical drawing, art, botany, and more mathematics than the minimum required for college entrance. A good background in English grammar also is important, since landscape architects must be able to express their ideas verbally as well as graphically.

College courses include technical subjects such as surveying, landscape construction, sketching, design communications, and city planning. Other courses include horticulture and botany as well as English, science, and mathematics. Most college programs also include field trips to view and study examples of landscape architecture.

Thirty-eight States require a license, based on the results of a uniform national licensing examination, for independent practice of landscape architecture. Admission to the licensing examination usually requires a degree from an accredited school of landscape architecture plus 2 to 4 years of experience. Lengthy apprenticeship training (6-8 years) under an experienced landscape architect sometimes may be substituted for college training.

Persons planning careers in landscape architecture should have creative imagination, drawing talent, and an appreciation for nature. Self-employed landscape architects also must understand business practices. Working for landscape architects or landscape contractors during summer vacations helps a person understand the practical problems of the profession, and may be helpful in obtaining employment after graduation.

New graduates usually begin as junior drafters, tracing drawings and doing other simple drafting work. After gaining experience, they help prepare specifications and construction details and handle other aspects of project design. After 2 or 3 years they can usually carry a design through all stages of development. Highly qualified landscape architects may become associates in private firms; landscape architects who progress this far, however, often open their own office.

Employment Outlook

Employment of landscape architects is expected to grow faster than the average for all occupations

through the mid-1980's. Additionally, new entrant will be needed as replacements for landscape architects who retire or die.

Anticipated rapid growth in new construction is expected to play a major role in increasing demand for landscape architects. However, during slow periods the demand could be limited.

Another factor underlying the increased demand for landscape architects is the growing interest in city and regional environmental planning. Metropolitan areas will require landscape architects to plan efficient and safe land use for growing populations. Legislation to promote environmental protection could also spur demand for landscape architects to participate in planning and designing transportation systems, outdoor recreation areas, and land reclamation projects, as well as to ensure safe industrial growth.

Earnings and Working Conditions

Newly graduated landscape architects generally earned from $10,500 to $12,500 a year in 1976. Most experienced landscape architects earned between $15,000 and $20,000 a year, although some highly skilled persons earned salaries of over $30,000 a year. Salaries of self-employed landscape architects ranged from $10,000 a year to well over $25,000 a year, depending on the individual's educational background, experience, and geographic location.

The Federal Government, in 1977, paid new graduates with a bachelor's degree annual salaries of $9,300 or $11,500 depending on their qualifications. Those with an advanced degree had a starting salary of $14,100 a year. Landscape architects in the Federal Government averaged $22,500 a year.

Salaried employees both in government and in landscape architectural firms usually work regular hours, although employees in private firms may also work overtime during seasonal rush periods or to meet a deadline. Self-employed persons often work long hours.

Sources of Additional Information

Additional information, including a list of colleges and universities offering accredited courses of study in landscape architecture, is available from:

American Society of Landscape Architecture, Inc., 1750 Old Meadow Rd., McLean, Va. 22101.

For information on a career as a landscape architect in the Forest Service, write to:

U.S. Department of Agriculture, Forest Service, Washington, D.C. 20250.

URBAN PLANNERS

(D.O.T. 199.168)

Nature of the Work

Urban planners, often called community or regional planners, develop programs to provide for future growth and revitalization of urban, suburban, and rural communities. They help local officials make decisions to solve social, economic, and environmental problems.

Planners examine community facilities such as health clinics and schools to be sure these facilities can meet the demands placed upon them. They also keep abreast of the legal issues involved in community development or redevelopment and changes in housing and building codes. Because suburban growth has increased the need for better ways of traveling to the urban center, the planner's job often includes designing new transportation and parking facilities.

Urban planners prepare for situations or needs that are likely to develop as a result of population growth or social and economic change. They estimate, for example, the community's long-range needs for housing, transportation, and business and industrial sites. Working within a framework set by the community government, they analyze and propose alternative ways to achieve more efficient and attractive urban areas.

Urban planners view the present and future development of the east coast.

Before preparing plans for long-range community development, urban planners prepare detailed studies that show the current use of land for residential, business, and community purposes. These reports present information such as the arrangement of streets, highways, and water and sewer lines, and the location of schools, libraries, and playgrounds. They also provide information on the types of industries in the community, characteristics of the population, and employment and economic trends. With this information, urban planners propose ways of using undeveloped land and design the layout of recommended buildings and other facilities such as subways. They also prepare materials that show how their programs can be carried out and the approximate costs.

Urban planners often confer with private land developers, civic leaders, and officials of public agencies that do specialized planning. They may prepare materials for community relations programs, speak at civic meetings, and appear before legislative committees to explain and defend their proposals.

In small organizations, urban planners must be able to do several kinds of work. In large organizations, planners usually specialize in areas such as physical design, community relations, or the reconstruction of run-down business districts.

Places of Employment

About 16,000 persons were urban planners in 1976. Most work for city, county, or regional planning agencies. A growing number are employed by States or by the Federal Government in agencies dealing with housing, transportation, or environmental protection.

Many planners do consulting work, either part time in addition to a regular job, or full time working for a firm that provides services to private developers or government agencies. Urban planners also work for large land developers or research organizations and teach in colleges and universities.

Training, Other Qualifications, and Advancement

Employers often seek workers who have advanced training in urban planning. Most entry jobs in Federal, State, and local government agencies require 2 years of graduate study in urban or regional planning, or the equivalent in work experience. Although the master's degree in planning is the usual requirement at the entry level, some people who have a bachelor's degree in city planning, architecture, landscape architecture, or engineering may qualify for beginning positions.

In 1976, over 80 colleges and universities gave a master's degree in urban planning. Although students holding a bachelor's degree in architecture or engineering may earn a master's degree after 1 year, most graduate programs in urban planning require 2 or 3 years to complete. Graduate students spend considerable time in workshops or laboratory courses learning to analyze and solve urban planning problems. Students often are required to work in a planning office part time or during the summer while they are earning the graduate degree

Candidates for jobs in Federal, State, and local government agencies usually must pass civil service examinations to become eligible for appointment.

Planners must be able to think in terms of spatial relationships and to visualize the effects of their plans and designs. They should be flexible in their approaches to problems and be able to cooperate with others and reconcile different viewpoints to achieve constructive policy recommendations.

After a few years' experience, urban planners may advance to assignments requiring a high degree of independent judgment, such as outlining proposed studies, designing the physical layout of a large development, or recommending policy, program, and budget options. Some are promoted to jobs as planning directors, and spend a great deal of time meeting with officials in other organizations, speaking to civic groups, and supervising other professionals. Further advancement is more difficult at this level and often occurs through a transfer to a large city, where the problems are more complex and the responsibilities greater.

Employment Outlook

Employment of urban planners is expected to grow faster than the average for all occupations through the mid-1980's. In addition to openings created by future growth of this relatively small occupation, some jobs will open up because of the need to replace planners who leave their jobs.

Future growth of the occupation will depend to a great extent on the availability of money for urban planning projects. Growth in Federal support for State and local community development, urban restoration, and land use planning programs should increase requirements for urban planners. Many opportunities for planners should arise in fields in which they have not traditionally been employed, such as environmental and social service planning.

Earnings and Working Conditions

Starting salaries for urban planners ranged between $11,000 and $14,000 a year in 1976. Planners with a master's degree were hired by the Federal Government at $14,097 a year in 1977. In some cases, persons having less than 2 years of graduate work could enter Federal service as interns at yearly salaries of either $9,303 or $11,523.

State governments paid urban planners average beginning salaries of about $11,000 a year in mid-1976, although planners started at more than $14,000 in some States. Salaries of experienced State planners ranged from an average minimum of nearly $16,000 a year to an average maximum of more than $21,000 a year. Salaries of State planning directors ranged from an average minimum of about $24,000 to an average maximum of nearly $28,000 in mid-1976.

City, county, and other local governments paid urban planners average starting salaries exceeding $14,000 in 1976, although some communities in the East and South paid less. In 1976, experienced urban and regional planners generally earned more than one and one-half times as much as the average earnings for all nonsupervisory workers in private industry, except farming.

Most planners have sick leave and vacation benefits and are covered by retirement and health plans. Although most city planners have a scheduled workweek of 40 hours, they sometimes work in the evenings and on weekends to attend meetings with citizens' groups.

Sources of Additional Information

Facts about careers in planning and a list of schools offering training are available from:

American Institute of Planners, 1776 Massachusetts Ave. NW., Washington, D.C. 20036.

American Society of Planning Officials, 1313 East 60th St., Chicago, Ill. 60637.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1977 O—248-025

What to Look For in this Reprint

To make the *Occupational Outlook Handbook* easier to use, each occupation or industry follows the same outline. Separate sections describe basic elements, such as work on the job, education and training needed, and salaries or wages. Some sections will be more useful if you know how to interpret the information as explained below.

The TRAINING, OTHER QUALIFICATIONS, AND ADVANCEMENT section indicates the preferred way to enter each occupation and alternative ways to obtain training. Read this section carefully because early planning makes many fields easier to enter. Also, the level at which you enter and the speed with which you advance often depend on your training. If you are a student, you may want to consider taking those courses thought useful for the occupations which interest you.

Besides training, you may need a State license or certificate. The training section indicates which occupations generally require these. Check requirements in the State where you plan to work because State regulations vary.

Whether an occupation suits your personality is another important area to explore. For some, you may have to make responsible decisions in a highly competitive atmosphere. For others, you may do only routine tasks under close supervision. To work successfully in a particular job, you may have to do one or more of the following:

- motivate others
- direct and supervise others
- work with all types of people
- work with things—you need good coordination and manual dexterity
- work independently—you need initiative and self-discipline
- work as part of a team
- work with details, perhaps numbers or laboratory reports
- help people
- use creative talents and ideas
- work in a confined area
- do physically hard or dangerous work
- work outside in all types of weather

A counselor can help you find out more about your interests and abilities so you can judge whether a job's characteristics suit you.

The EMPLOYMENT OUTLOOK section tells whether or not the job market is likely to be favorable. Usually an occupation's expected growth is compared to the average projected growth rate for all occupations (20.1 percent between 1976 and 1985). The following phrases are used:

Much faster	50% or more
Faster	25.0 to 49.9%
About as fast	15.0 to 24.9%
Slower	4.0 to 14.9%
Little change	3.9 to -3.9%
Decline	-4.0% or more

Generally, job opportunities are favorable if employment is growing at least as fast as for the economy as a whole.

But, you would have to know the number of people competing with you to be sure of your prospects. Unfortunately, this supply information is lacking for most occupations.

There are exceptions, however, especially among professional occupations. Nearly everyone who earns a medical degree, for example, becomes a practicing physician. When the number of people pursuing relevant types of education and training and then entering the field can be compared with the demand, the outlook section indicates the supply/demand relationship as follows:

Excellent	Demand much greater than supply
Very good	Demand greater than supply
Good or favorable	Rough balance between demand and supply
May face competition	Likelihood of more supply than demand
Keen competition	Supply greater than demand

Competition or few job openings should not stop your pursuing a career that matches your aptitudes and interests. Even small or overcrowded occupations provide some jobs. So do those in which employment is growing very slowly or declining.

Growth in an occupation is not the only source of job openings because the number of openings from turnover can be substantial in large occupations. In fact, replacement needs are expected to create 70 percent of all openings between 1976 and 1985.

Finally, job prospects in your area may differ from those in the Nation as a whole. Your State employment service can furnish local information.

The EARNINGS section tells what workers were earning in 1976.

Which jobs pay the most is a hard question to answer because good information is available for only one type of earnings—wages and salaries—and not even this for all occupations. Although 9 out of 10 workers receive this form of income, many earn extra money by working overtime, night shifts, or irregular schedules. In some occupations, workers also receive tips or commissions based on sales or service. Some factory workers are paid a piece rate—an extra payment for each item they make.

The remaining 10 percent of all workers—the self-employed—includes people in many occupations—physicians, barbers, writers, and farmers, for example. Earnings for self-employed workers even in the same occupation differ widely because much depends on whether one is just starting out or has an established business.

Most wage and salary workers receive fringe benefits, such as paid vacations, holidays, and sick leave.

Workers also receive income in goods and services (payment in kind). Sales workers in department stores, for example, often receive discounts on merchandise.

Despite difficulties in determining exactly what people earn on the job, the Earnings section does compare occupational earnings by indicating whether a certain job pays more or less than the average for all nonsupervisors in private industry, excluding farming.

Each occupation has many pay levels. Beginners almost always earn less than workers who have been on the job for some time. Earnings also vary by geographic location but cities that offer the highest earnings often are those where living costs are most expensive.

What's an ad for the OOQ doing in a place like this?

The career information contained in the reprint you are reading was taken from the 1978-79 edition of the Occupational Outlook Handbook. But the Handbook is not the only source of useful career information published by the Bureau of Labor Statistics. The Handbook's companion, the Occupational Outlook Quarterly, is published four times during the school year to keep subscribers up to date on new occupational studies completed between editions of the Handbook. The Quarterly also gives practical information on training and educational opportunities, salary trends, and new and emerging jobs—just what people need to know to plan careers.

If you were a subscriber to recent issues of the Occupational Outlook Quarterly, you could have learned

- how to write an effective employment resume
- what the long-term employment prospects are for college graduates
- ways to earn college credit without going to college
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